

WET'SUWET'EN ETHNOBOTANY: TRADITIONAL PLANT USES

LESLIE M. JOHNSON GOTTESFELD

*Anthropology Department
13-15 HM Tory Bldg.
University of Alberta
Edmonton, Alberta, Canada
T6G 2H4*

ABSTRACT.—The Wet'suwet'en are an Athapaskan-speaking people of northwestern British Columbia who occupy the transition zone between the sub-boreal spruce forests of the central interior and the cedar-hemlock forests of the Pacific Coast. Wet'suwet'en plant use reflects their transitional location and the diverse plant communities available in their territories. Plant uses show similarities to neighboring peoples. Plants are used by Wet'suwet'en people for herbal medicines, foods, and material culture. The names and uses of 59 species of vascular plants and three nonvascular taxa are documented in this study. Plant uses reported here reflect Wet'suwet'en practices of the twentieth century and have been verified by living elders.

Important medicines include: *Oplopanax horridum*, *Abies lasiocarpa*, *Picea engelmannii* x *glauca*, *Cornus stolonifera*, *Sorbus scopulina*, *Lonicera involucrata*, *Nuphar polysepalum*, and *Veratrum viride*. Food plants include *Heracleum lanatum*, *Sedum divergens*, *Dryopteris expansa*, *Pinus contorta*, *Tsuga heterophylla*, *Vaccinium membranaceum*, *Vaccinium caespitosum*, *Arctostaphylos uva-ursi*, *Cornus canadensis*, *Viburnum edule*, and *Vaccinium oxycoccus*. Plants used in technology and material culture include *Acer glabrum* var. *douglasii*, *Pinus contorta*, *Betula papyrifera*, *Salix* spp., *Thuja plicata*, *Alnus* spp., and *Picea engelmannii* x *glauca*.

RESUMEN.—Los Wet'suwet'en son un pueblo de habla athapaskana del noroeste de Columbia Británica, en el Canadá, que ocupa la zona de transición entre los bosques sub-boreales de *Picea* del interior central y los bosques de *Thuja plicata* y *Tsuga heterophylla* de la costa del Pacífico. La utilización de plantas por parte de los Wet'suwet'en refleja su ubicación transicional y la diversidad de comunidades vegetales disponibles en sus territorios. Los usos de las plantas muestran similitudes con los grupos vecinos. Los Wet'suwet'en emplean plantas como remedio, alimento y cultura material. En este estudio se documentan los nombres y usos de 59 especies de plantas vasculares y de tres taxa no vasculares. Los usos aquí reportados reflejan prácticas vigentes de los Wet'suwet'en en el siglo veinte y han sido verificados por los ancianos actuales.

Las medicinas importantes incluyen a: *Oplopanax horridum*, *Abies lasiocarpa*, *Picea engelmannii* x *glauca*, *Cornus stolonifera*, *Sorbus scopulina*, *Lonicera involucrata*, *Nuphar polysepalum*, y *Veratrum viride*. Las plantas alimenticias incluyen a *Heracleum lanatum*, *Sedum divergens*, *Dryopteris expansa*, *Pinus contorta*, *Tsuga heterophylla*, *Vaccinium membranaceum*, *Vaccinium caespitosum*, *Arctostaphylos uva-ursi*, *Cornus canadensis*, *Viburnum edule*, y *Vaccinium oxycoccus*. Las plantas empleadas en la tecnología y la cultura material incluyen a *Acer glabrum* var. *douglasii*, *Pinus*

contorta, *Betula papyrifera*, *Salix* spp., *Thuja plicata*, *Alnus* spp., y *Picea engelmannii* x *glauca*.

RÉSUMÉ.—Les Wet'suwet'en sont un peuple autochtone parlant la langue athapascane du nord ouest de la Colombie Britannique qui occupent une zone de transition entre les forêts de sapins de l'intérieur et les forêts de cèdres de la côte pacifique. L'utilisation des plantes par les Wet'suwet'en reflète leur occupation de cette zone de transition et les diverses communautés de plantes présentes dans ce territoire. Leur utilisation des plantes montre des similarités avec celle qu'en font leurs voisins. Les plantes sont utilisées par les Wet'suwet'en en tant que plantes médicinales, comme nourriture et pour culture matérielle. Les noms et l'utilisation de 59 espèces de plantes vasculaires et trois taxons non-vasculaires sont documentés dans cette étude. L'utilisation des plantes décrite ici reflète les pratiques des Wet'suwet'en du vingtième siècle et ont été vérifiées par des aînés contemporains.

Les plantes médicinales importantes sont: *Oplopanax horridum*, *Abies lasiocarpa*, *Picea engelmannii* x *glauca*, *Cornus stolonifera*, *Sorbus scopulina*, *Lonicera involucrata*, *Nuphar polysepalum*, et *Veratrum viride*. Les plantes alimentaires incluent: *Heracleum lanatum*, *Sedum divergens*, *Dryopteris expansa*, *Pinus contorta*, *Tsuga heterophylla*, *Vaccinium membranaceum*, *Vaccinium caespitosum*, *Arctostaphylos uva-ursi*, *Cornus canadensis*, *Viburnum edule*, et *Vaccinium oxycoccus*. Les plantes utilisées dans la technologie et la culture matérielle sont les suivantes: *Acer glabrum* var. *douglasii*, *Pinus contorta*, *Betula papyrifera*, *Salix* spp., *Thuja plicata*, *Alnus* spp., et *Picea engelmannii* x *glauca*.

INTRODUCTION AND SETTING

The Wet'suwet'en are an Athapaskan-speaking people who occupy the drainage of the Bulkley and Morice Rivers and the western headwaters of the Fraser River system in the area of François Lake in northwestern British Columbia, Canada (Fig. 1). Their territory is transitional between the boreal interior and the northwest coast. Many features of their social organization and ecological adaptations are also transitional, shared with the Gitksan, a Tsimshian-speaking people, and the Haisla, a Northern Wakashan-speaking group with whom they have long histories of interaction, while other features of their way of life are similar to more interior Athapaskan groups.

Little material on the ethnobotany of the Wet'suwet'en has been previously documented. Morice (1893) made pioneering studies of the Wet'suwet'en and Carriers in the late nineteenth century. He did not differentiate Wet'suwet'en plant uses or names from those of the Carrier or even the Chilcotin. An unpublished manuscript on Carrier ethnobotany was produced by Smith during 1922–1923 (Smith n.d.). No serious ethnobiological work has been done with the Wet'suwet'en people until the present study.

The Wet'suwet'en live in the villages of Moricetown and Hagwilget, which are Indian Reserves, and in the surrounding communities of Northwest B.C. Many ties exist with the Babines of Fort Babine, who speak the same language with minor dialectical variation. The Wet'suwet'en were long classed as Carrier Indians, but recent studies have argued for their distinctness (Kari 1975).

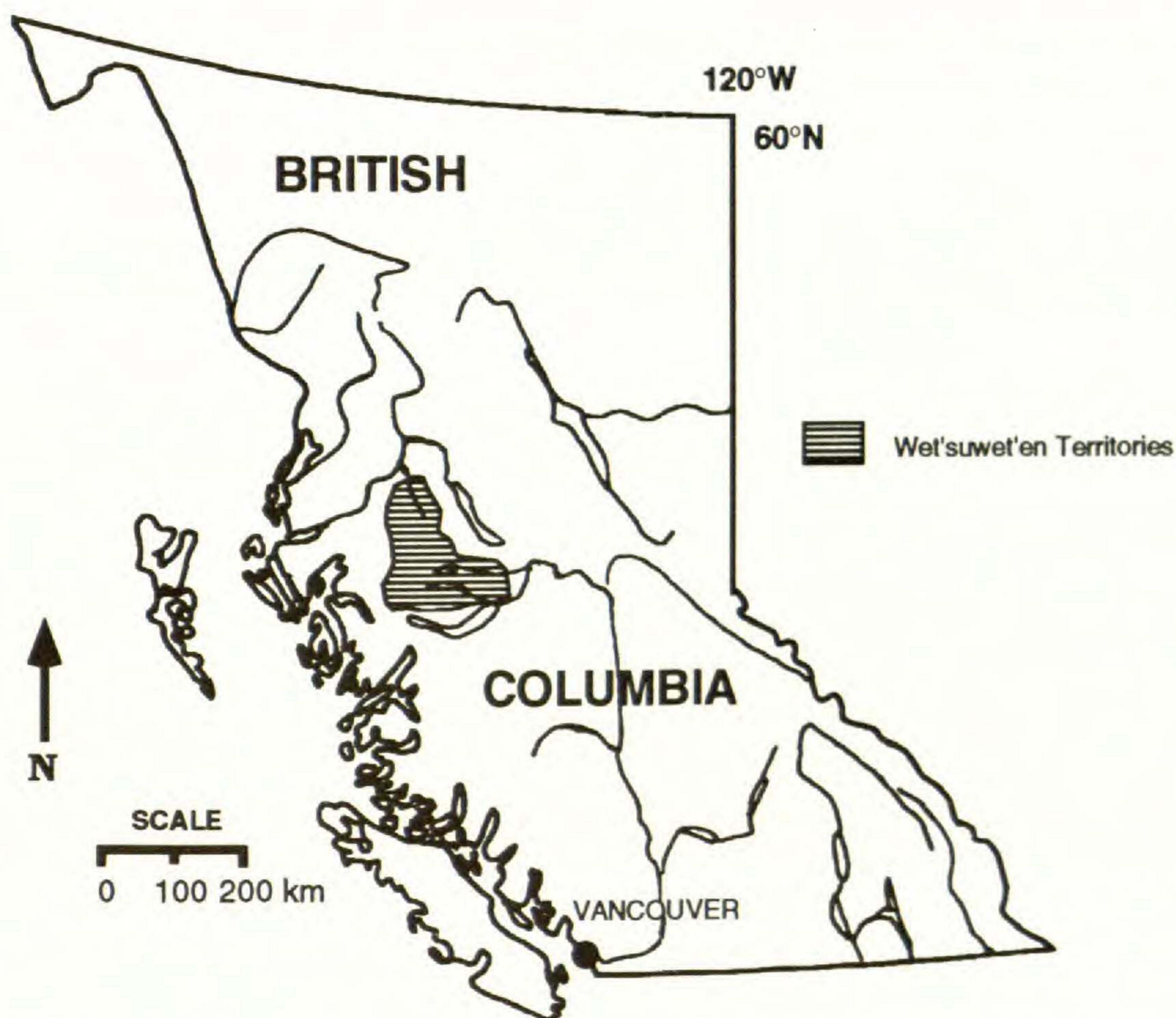


FIG. 1.—Map of the territory of the Wet'suwet'en people, northwestern British Columbia, Canada.

Vegetation of the Wet'suwet'en territory includes a fringe of coastal forest types of the Interior Cedar Hemlock Zone (Haeussler et al. 1985) near Moricetown and Hagwilget and the Coastal Western Hemlock Zone at the western margin of their territory. The bulk of the Wet'suwet'en territory is in the Sub-Boreal Spruce Zone (Pojar et al. 1984).

Until the past 30 to 50 years, the annual cycle of the Wet'suwet'en involved congregation on the Bulkley River to fish for salmon in Moricetown or Hagwilget Canyons and dispersal to hunting and trapping territories in the winter (Daly 1988). Groups from different winter hunting territories converged on the summer villages in time for the arrival of the salmon in early summer, arriving from widely scattered areas within a span of a few of days. Chinook (*Onchorynchus tshawytscha* (Walbaum)), sockeye (*O. nerka* (Walbaum)), and coho salmon (*O. kisutch* (Walbaum)) were fished with dip nets, weirs, and gaffs.

Summer was feast time for the Wet'suwet'en, when an abundant and concentrated food resource brought all the people together. Important group events such as funeral feasts and succession to new titles took place during the summer feast season (Mills 1987). The bodies of important people might be transported long distances back to the village to be buried (in historic times) or cremated with proper rites. This contrasts with the pattern seen in Coastal peoples, who dispersed to fish in the summer and came together in winter villages for a feast season.

In the fall the Wet'suwet'en people dispersed according to their clan affiliations to widely separated hunting and trapping areas, and families spent the winter hunting, ice fishing, and trapping. Trapping territories included areas in the Hazelton and Babine mountains, the Nechako Plateau, and the Tahtsa ranges of the Coast Mountains. In the spring after beaver hunting and trapping, all the Wet'suwet'en would again congregate in the Bulkley Valley, bringing furs and smoked lake fish with them.

Because of their patterns of movement, different groups of Wet'suwet'en people had access to the resources of very different biotic zones at different time of the year. Salmon and red cedar (refer to Table 1 for scientific names not listed in the text) were shared by all in the summer fishing season in the canyons of the lower Bulkley. Resources of the ecological communities of the montane and alpine slopes of the Hazelton Mountains, with western hemlock, amabilis fir (*Abies amabilis* (Dougl.) Forbes), mountain hemlock (*T. mertensiana* (Bong.) Carr.), sub-alpine fir, and spruce, interspersed with wet meadows and dry screes and avalanche tracks, were available to groups with western hunting and trapping territories. Resources of the rugged Babine Mountains, with spruce or pine forests and dry alpine meadows, were utilized by groups with trapping territories in the northeast part of the Wet'suwet'en lands. The drier Nechako plateau country, with rolling spruce and pine forests, aspen woodlands, grassy slopes, and willow swamps, offered diverse resources to Wet'suwet'en people with territories in the southerly portion of their lands.

Plants are used by the Wet'suwet'en people for medicine, food, and material culture. Medicines are derived from barks, roots, and foliage of a number of different species. Foods include green vegetables, fruits and berries, and root foods. Technological materials include fiber plants, wood, and dyes and pigments. Names of plants used by Wet'suwet'en people are presented in Table 1.

METHODS

The information presented in this paper was collected between 1987 and 1992 through interviews of 31 Wet'suwet'en elders and knowledgeable people about the names and uses of plants.¹ Consultants included both men and women. Most of the consultants are middle-aged or elderly people of traditional upbringing who are fluent speakers of the Wet'suwet'en language. Interviews were conducted in Wet'suwet'en, using a translator, or in English. Where possible, plants in the field, fresh plant specimens, or dried "case" specimens of known botanical identity (Bye 1986) were used to verify the identifications of the plants discussed.² Color photographs and line drawings were also employed to verify plant identifications.

All ethnobotanical information and Wet'suwet'en names reported here have been derived from interviews with living people. Not all plant uses reported are still being practiced by the Wet'suwet'en because of extensive changes in subsistence and culture in the past sixty years, but all plant uses described here have been observed or practiced by the consultants in the recent past. Reported historical uses of plants not confirmed by living elders will not be discussed in this paper.

TABLE 1.—Names of plants used by the Wet'suwet'en.

Common Name	Plant Species	Plant Family	Wet'suwet'en Name
Alder	<i>Alnus</i> spp.	Betulaceae	<i>k'is</i>
Aspen, trembling	<i>Populus tremuloides</i>	Salicaceae	<i>t'ighis</i>
Avens, large-leaved	<i>Geum macrophyllum</i> Willd.	Rosaceae	<i>ilk'it bin</i>
Birch, paper	<i>Betula papyrifera</i> Marsh.	Betulaceae	<i>k'ay</i>
"Black tree moss"	<i>Alectoria</i> or <i>Bryoria</i> spp.		<i>dikhghe</i>
Black twinberry, "bearberry"	<i>Lonicera involucrata</i> (Rich.) Banks	Caprifoliaceae	<i>sis mi' cin</i>
Blueberry, low-bush	<i>Vaccinium caespitosum</i> Michx.	Ericaceae	<i>yintimi?</i>
Blueberry, high- bush	<i>Vaccinium ovalifolium</i> Smith		<i>dindze</i>
Bunchberry	<i>Cornus canadensis</i> L.	Cornaceae	<i>dinihyez, dinih t'an</i>
Cedar, western red	<i>Thuja plicata</i> Donn. ex D. Don	Taxodiaceae	<i>simggin</i>
Cinder conk, black burl	<i>Inonotus obliquus</i> (Pers: Fr.) Pilat.	Hymenochaetaceae	<i>tl'eyhtsë, dic'ah</i> <i>ci'ists'o'</i>
Cottonwood, black	<i>Populus balsamifera</i> <i>L. trichocarpa</i> (Torr. & Gray. ex Hook.) Brayshaw	Salicaceae	<i>ts'iy</i>
Cow parsnip, "wild rhubarb"	<i>Heracleum lanatum</i> Michx.	Apiaceae	<i>ggus</i>
Crabapple, Pacific	<i>Pyrus fuscus</i>	Rosaceae	<i>milks</i>
Cranberry, high- bush	<i>Viburnum edule</i> (Michx.) Raf.	Caprifoliaceae	<i>tsalhtsë</i>
Cranberry, low- bush; bog	<i>Vaccinium oxycoccus</i> L.	Ericaceae	<i>mi'o</i>
"Currant, black"	<i>Ribes</i> sp	Grossulariaceae	<i>dilkw'akh mi?</i>
Currant, red	<i>Ribes triste</i> Pall. (?)	Grossulariaceae	<i>k'iy ditigi</i>
Devil's club	<i>Oplopanax horridum</i> (Smith) Miq.	Araliaceae	<i>whisco</i>
Dogbane, spreading	<i>Apocynum</i> <i>androsimaefolium</i> L.	Apocynaceae	<i>c'indeklh</i>
Elderberry, red	<i>Sambucus racemosa</i> L.	Caprifoliaceae	<i>luts</i>
Fir, subalpine; "balsam"	<i>Abies lasiocarpa</i> (Hook.) Nutt.	Pinaceae	<i>ts'otsin</i>
Fireweed	<i>Epilobium angustifolium</i> L.	Onagraceae	<i>khas t'an</i>
Gooseberry, northern	<i>Ribes oxycanthoides</i> L.	Saxifragaceae	<i>c'indewizgi</i>
Hazelnut, beaked	<i>Corylus cornuta</i> Marsh.	Betulaceae	<i>tsalik gg'a kun'</i>
Hellebore, Indian or false	<i>Veratrum viride</i> Ait.	Liliaceae	<i>konye</i>
Hemlock, western	<i>Tsuga heterophylla</i> (Raf.) Sarg.	Pinaceae	<i>misdzu</i>

TABLE 1.—Names of plants used by the Wet'suwet'en. (continued)

Common Name	Plant Species	Plant Family	Wet'suwet'en Name
Huckleberry, black	<i>Vaccinium membranaceum</i> Dougl.	Ericaceae	<i>digi</i>
Juniper, common	<i>Juniperus communis</i> L.	Cupressaceae	<i>detsan</i>
Juniper, Rocky Mountain	<i>Juniperus scopulorum</i> Sarg.	Cupressaceae	
Kinnikinnik	<i>Arctostaphylos uva-ursi</i> (L.) Spreng.	Ericaceae	<i>dinih</i>
Labrador tea	<i>Ledum groenlandicum</i> Oeder	Ericaceae	<i>ldi misgik</i>
Lady fern	<i>Athyrium filix foemina</i> (L.)	Polypodiaceae	
Maple, Douglas	<i>Acer glabrum</i> (Torr.) var. <i>douglasii</i> (Hook.) Dippel	Aceraceae	<i>'ayh</i>
Mountain ash	<i>Sorbus scopulina</i> Greene	Rosaceae	<i>dicin ilhtsin</i>
Nettles, stinging	<i>Urtica dioica</i> L.	Urticaceae	<i>holhts'ic</i>
Onion, nodding; "stink grass"	<i>Allium cernuum</i> Roth	Liliaceae	<i>tl'o ilhtsin</i>
Pin cherry	<i>Prunus pennsylvanica</i> L.	Rosaceae	<i>smits'ok</i>
Pine, lodgepole	<i>Pinus contorta</i> Dougl.	Pinaceae	<i>cindu</i>
Plantain, broad-leaved	<i>Plantago major</i> L.	Plantaginaceae	<i>delkw'akh nelhdic</i>
Raspberry	<i>Rubus idaeus</i> L.	Rosaceae	<i>biyolhggok</i>
Red columbine	<i>Aquilegia formosa</i> Fisch.	Ranunculaceae	<i>lesokh</i>
Red-osier dogwood	<i>Cornus stolonifera</i> Michx.	Cornaceae	<i>kak dilk'i'n; wikak dilk'i'n; k'entsik</i>
Rice root; "wild rice"	<i>Fritillaria camschatcensis</i> (L.) Ker-Gawl	Liliaceae	<i>c'inkalh</i>
Rose, prickly	<i>Rosa acicularis</i> Lindl.	Rosaceae	<i>tselhghil</i>
Salmonberry	<i>Rubus spectabilis</i> Pursh	Rosaceae	<i>misggile'n</i>
Sarsaparilla, wild	<i>Aralia nudicaulis</i> L.	Araliaceae	<i>scanistles</i>
Saskatoon	<i>Amelanchier alnifolium</i> Nutt.	Rosaceae	<i>lhighah</i>
Scouring rush	<i>Equisetum hyemale</i> L.	Equisetaceae	<i>lawzi'</i>
Skunk cabbage	<i>Lysichitum americanum</i> Hultén & St. John	Araceae	<i>c'it anco</i>
Snowberries, "grouseberries"	<i>Symphoricarpos albus</i> (L.) Blake	Caprifoliaceae	<i>c'itsit mi'</i>
Sphagnum, "diaper moss"	<i>Sphagnum</i> sp.	Sphagnaceae	<i>yin yil, yintl'akh yil</i>
Soapberry	<i>Shepherdia canadensis</i> (L.) Nutt.	Eleagnaceae	<i>niwis</i>
Spruce	<i>Picea engelmannii</i> x <i>glauca</i>	Pinaceae	<i>ts'o</i>
Spruce, black	<i>Picea mariana</i> (Mill.) Brittl, Sterns & Pogg.	Pinaceae	<i>ts'o; nedus</i>

TABLE 1.—Names of plants used by the Wet'suwet'en. (continued)

Common Name	Plant Species	Plant Family	Wet'suwet'en Name
Stonecrop; "stone berries"	<i>Sedum divergens</i> Wats.	Crassulaceae	<i>tsë mi'</i>
Strawberry, wild	<i>Fragaria virginiana</i> Duchesne	Rosaceae	<i>yinti dilk'i'n</i>
Thimbleberry	<i>Rubus parviflorus</i> Nutt.	Rosaceae	<i>dik dinkay</i>
"Wild carrots"	<i>Sium suave</i> Walt.(?) ^f	Apiaceae	<i>sasco</i>
Willow	<i>Salix</i> spp. probably <i>S. lasiandra</i> and/or <i>S. scouleriar</i>	Salicaceae	<i>k'ëltay, k'endliyh</i>
Wood fern, spiny	<i>Dryopteris expansa</i> (K.B Presl) Fraser- Jenkins & Je	Polypodiaceae	<i>diyï 'n</i>
Yarrow	<i>Achillea millaefolium</i> L.	Asteraceae	<i>bi'il yesonë</i>
Yellow pond lily	<i>Nuphar polysepalum</i> Engelm.	Nymphaeaceae	<i>khëlht'ats</i>

^f P. Kari, unpublished notes

MEDICINAL PLANTS

Many of the medicinal plants used by the Wet'suwet'en are used by other Indian peoples of northern British Columbia. Plants are generally employed as decoctions or infusions for internal or external use, mashed as poultices and wound dressings, or eaten. Many medicines are derived from the bark or inner bark of the plant (Gottesfeld 1992a). "Wood medicine," *dicin yu*,³ is the term for medicinal decoctions made from barks or inner barks, often mixtures of a number of species. The same medicinal category is present among the neighboring Gitksan where it is called *haldokum gan*.⁴ Roots and rhizomes are often used as poultices for arthritis and rheumatism. Crushed leaves or chewed inner bark serve as dressings for sores and wounds. Plants are also employed as fumigants for warding off disease or cleansing taboo violations. Some plants are also believed to bring luck. Medicinal plant uses are summarized in Table 2. A discussion of the more important medicinal plants follows.

Indian hellebore, konye (*Veratrum viride* Ait.).—Indian hellebore is a large forb of midelevation and subalpine moist meadows. The rhizome is gathered for medicinal use. It is toxic, containing a variety of alkaloids that act to depress central blood pressure (Kingsbury 1964). It is considered a plant of great spiritual power; its primary uses are for ritual purification and bringing or restoring "luck," especially in hunting. Usually the dried rootstock is grated and the powder used for purification, but sometimes an infusion of pieces of the dried rootstock and other ingredients such as cow parsnip root and devil's club bark may be made and the liquid used for washing. Indian hellebore is also used as a fumigant. It apparently was used in the sweat bath in the past. A piece of the dried rootstock may also be carried as a luck charm. The root can also be used externally in the

TABLE 2.—Medicinal plants.

Plant Name	Tonic	Heart	Respiratory	Skin	Rheumatism/ Arthritis	Stomach	Wounds or Burns	Unspecified/ General	Pain	Urinary	Childbirth
Avens, large-leaved				✓	✓		✓				
Black twinberry			✓	✓			✓				
Cinder conk									✓		
Cottonwood, black			✓					✓			
Cow parsnip			✓	✓	✓						
Crabapple, Pacific			✓								
Cranberry, high-bush			✓					✓			
Devil's club	✓	✓	✓		✓		✓	✓			
Elderberry, red								✓			
Fern Rhizome (unspec.)											✓
Fir, subalpine	✓		✓				✓	✓			
Hellebore, Indian				✓	✓						
Juniper, common	✓										
Kinnikinnik berries		✓				✓					
Labrador tea	✓	✓									
Mountain ash			✓					✓			
Nettles, stinging	✓			✓		✓		✓			
Pin cherry			✓								
Pine, lodgepole			✓					✓			
Plantain, broad-leaved				✓							
Pond lily, yellow	✓		✓		✓						
Red-osier dogwood			✓	✓		✓	✓	✓	✓		✓
Rose, prickly			✓					✓			
Sarsaparilla, wild			✓							✓	
Scouring rush										✓	
Snowberries					✓						
Soapberry						✓		✓			
Spruce			✓					✓			
Spruce, black			(✓)					✓			
Strawberry, wild											
Yarrow				✓	✓						

TABLE 2.—Medicinal plants. (continued)

Plant Name	Purgative	Purification/ Spiritual	Eye	Laxative	Diarrhoea	"Cleanser"	Dental	Diabetes	Hair Rinse
Avens, large-leaved									
Black twinberry			✓						
Cinder conk									
Cottonwood, black									
Cow parsnip									
Crabapple, Pacific									
Cranberry, high-bush									
Devil's club	✓	✓						✓	
Elderberry, red	✓								
Fern Rhizome (unspec.)									
Fir, subalpine						✓			
Hellebore, Indian		✓							
Juniper, common									
Kinnikinnik berries									
Labrador tea						✓			
Mountain ash									
Nettles, stinging					✓				✓
Pin cherry									
Pine, lodgepole									
Plantain, broad-leaved									
Yellow Pond lily, yellow									
Red-osier dogwood									
Rose, prickly									
Sarsparilla, wild									
Scouring rush									
Snowberries			✓						
Soapberry				✓					
Spruce							✓		
Spruce, black							✓		
Strawberry, wild					✓				
Yarrow									

treatment of sore or inflamed joints. Indian hellebore was never taken internally by the Wet'suwet'en.

The Wet'suwet'en regard this plant as extremely powerful and dangerous and treat it with the utmost respect and care. When gathering *konye*, it is proper to leave a gift in the hole from which it has been dug and to cover the hole again with soil. Men should take roots from a "female" plant, which has dried flowers on top. Women should use roots from a "male" plant, which lacks dried flowers.

"Wood medicines."—Devil's club is the most widely used and gathered medicinal plant of northwest and coastal British Columbia. It is a sprawling shrub up to 2 m in height, characteristic of moist mixed and conifer forests and avalanche tracks. Its Wet'suwet'en name, *whisco*, "big thorn," refers to the impressive array of spines which cover the stems and leaf veins. The inner bark is used by the Wet'suwet'en in medicinal mixtures with ingredients such as subalpine fir bark, spruce bark, or mountain ash bark. It was also boiled alone (Fig. 2). These decoctions are used to treat colds, flu, or tuberculosis, or as tonics and preventative medicines. Devil's club is reported to be good for heart disease. The inner bark is also used fresh, worn around the neck as an aromatic treatment for colds. The bark is burned on the stove top to treat people with colds or to ward off sickness in a house. Bathing in devil's club infusions is part of the ritual cleansing that men undergo before hunting or trapping.

Devil's club roots can also be dug up and used. They can be chewed for cough medicine or brewed as a tea. Roots are reported to be stronger than the stems.

Red-osier dogwood is a common shrub of aspen forest and cottonwood forests, lakeshores, and river banks. It is called *kak dilk'i'n*, *wikak dilk'i'n*, or *k'ëntsik* by the Wet'suwet'en. The root *dilk'i*, "red," refers to the color of the bark. The bark or inner bark of this plant is used in medicinal mixtures for various purposes. It may be boiled with subalpine fir and spruce bark, with mountain ash and black twinberry bark, and with devil's club. It is taken for coughs and respiratory ailments. A decoction of red-osier inner bark can be used to treat psoriasis by soaking the affected body part in the solution. A decoction of red-osier inner bark is also used internally for treatment of postpartum hemorrhage, for pain after childbirth, or for stomach pain.

Black twinberry is called *sis mi' cin*, "bearberry," by the Wet'suwet'en. The inner bark of black twinberry is highly valued as a wound dressing and for treatment of infection. It is particularly described as being an effective medicine for burns. An infusion of the inner bark or the raw, fresh chewed bark is applied to the burn. An eye medicine can be made from the inner bark of black twinberry. It also forms one of the ingredients of medicinal mixtures of barks used for coughs and respiratory illness.

Mountain ash is called *dicin ilhtsin*, which means "smelly or stink wood." It is also called *honca ts'iy cin* and *cinic hikh*. The inner bark is scraped off larger stems and dried or used fresh. It can be infused alone and taken for bad colds, flu, and general sickness, or it can be mixed with other ingredients such as devil's club, subalpine fir bark, and black twinberry bark, and boiled together for a strong medicine effective against diseases such as whooping cough. Mountain ash was used along with yellow pond lily root for treatment of tuberculosis in the recent past.



FIG. 2.—The late Madeline Alfred preparing medicine from devil's club.

The bark and pitch of the subalpine fir are highly valued for medicine. The pitch may be taken alone internally for sickness or to aid in healing external wounds. The bark may be mixed with other barks, such as devil's club, mountain ash, and black twinberry, in medicinal decoctions as mentioned above.

Spruce bark is used similarly to subalpine fir bark. Both may be specified in recipes for medicinal decoctions. The young "tips" or terminal buds of young spruce trees are used to make medicine for colds. Black spruce foliage could also be used for medicine. The pitch of the black spruce was chewed to clean the teeth and as an oral antiseptic.

Foliage or tips of other conifers, such as lodgepole pine, were also used in medicines. Juniper boughs (*detsan'il*) and berries were used to make a medicinal decoction that was used as a tonic and for treatment of flu. A medicine could also be made from the juniper for treatment of venereal disease.

Bark of several other shrubs is used for medicinal decoctions. Snowberry bark is used for an eye medicine. Pin cherry bark, in combination with juniper boughs and willow or alder(?) bark, is used for cough. Red elderberry bark is also used for medicine. Jenness (reported in Smith 1928) noted the use of a decoction of the roots as a purgative. This practice was also found among the Gitksan in the early 1920s (Gottesfeld and Anderson 1988).

Medicinal roots.—Yellow pondlily (*khëlht'ats*), occurs widely in the shallow margins of lakes and ponds up to the subalpine zone. The leaves are called by the same name as plantain leaves, *dilkw'akh nelhdic*, "frog blanket." Yellow pond lily rootstock, (*khëlht'atsghih*) is used as a tonic, in medicinal mixtures taken internally in the treatment of tuberculosis, and as a poultice for rheumatic joints and fractures. One method of using yellow pondlily rootstock as a tonic is to roast and powder the peeled rootstocks. The powder is then added to food consumed at meals. Pond lily rootstock is hard to dig. Some elders describe finding rootstocks dug up by beavers or muskrats; another strategy is to wait until late summer when the water levels in ponds may be lower.

The root of the cow parsnip (*ggusghih*) is used as a poultice for rheumatism. A decoction of the root can be used for a cough medicine. It also can be used as an external wash, as described in the discussion of Indian hellebore.

Nettle rhizomes are boiled for medicine. They are good for "anything." A decoction of nettle rhizome with cow parsnip root, spruce bark, and subalpine fir bark is taken internally for skin rash. Nettle root is also an ingredient of a mixed medicinal decoction employed as a tonic.

The rhizomes of wild sarsaparilla (*scanistles*) were boiled in combination with a variety of other roots and barks as a tuberculosis remedy.

Skin treatments.—The green leaves of large-leaved avens are boiled for treatment of wounds and rashes. The affected area is bathed with the liquid. Avens can be mixed with black twinberry bark, which has similar properties, or with the inner bark of red-osier dogwood. All three ingredients boiled together are reported to make a good medicine for washing open wounds. A decoction of avens is also used as a hot soak to treat arthritic swelling. Mashed avens leaves can also be applied directly to a sore.

The leaves of broad-leaved plantain are applied directly to sores that are not healing, or a decoction of the leaves can be used to treat sores or swellings. Medicinal use of broad-leaved plantain may be of relatively recent origin, as the plant is considered a European introduction.

A decoction of yarrow is used as a skin wash to treat itching.

Other medicinal plants.—Soapberries (*niwis*) are used for the treatment of stomach ulcers. They are good for arthritis also. A decoction of the inner bark of the branches is used as a laxative or for a sore stomach.

Prickly rose (*tselhghil t'an*) can be used for medicine. The whole plant is boiled. It is "good for everything."

A decoction of scouring rush (*lawzi'*) is used to aid in passing urine in cases of kidney dysfunction.

Slivers of cinder conk (*tl'eyhtsë* or *dic'ah ci'ists'o'*), a black, amorphous-looking polypore found on birch trees, are burned on the skin as a moxibustion treatment to relieve pain (Gottesfeld 1992b).

Discussion.—Traditionally, diseases were treated either by home herbalists or *diyin*, "Indian doctors," using plant- or animal-derived remedies. In addition Indian doctors used medicine songs and spiritual powers derived from supernatural beings as part of their healing power. Sixty-five years ago Indian doctors, the Kalutl'em (*GGelulhem*) Society, and the more powerful and prestigious K'yan Society were much involved in treatment of serious illness that was believed to be spiritually caused (Jenness 1943). Jenness states that the importance and numbers of such practitioners was decreasing at that time (i.e., in the mid-1920s) (Jenness 1943).

At the present time home herbal- or animal-product remedies continue to be used, but specialized healers have been largely displaced by modern physicians. Cases of illness that did not respond to other treatments, including treatment by physicians, were diagnosed as "Indian Sickness" in the recent past and required initiation by the *GGelulhem*. A number of people treated in this manner are still living.

Some of the plants used by the Wet'suwet'en are known to have active ingredients that may contribute to their efficacy. Recent studies have affirmed the empirical basis and potential efficacy of many ethnomedical herbal treatments even though the understandings of disease etiology and therapeutic treatments may not replicate biomedical approaches (Browner 1985; Browner et al. 1988; Etkin 1986).

A comprehensive review of the biochemistry and pharmacology of Wet'suwet'en medicinal plants is beyond the scope of this paper, but a few examples will be discussed. The bark of various species of pine is known to have antibacterial properties (Moskalenko 1986). This would suggest their effectiveness for purposes such as treatment of wounds and perhaps in oral preparations for coughs and respiratory illnesses. The root and stem bark of elderberry are emetic (Kingsbury 1964).

Research in progress on the constituents of devil's club extracts has identified several triterpenoids, but the bioactivity of the isolated compounds has not yet been demonstrated (Sheng-Chu Feng, personal communication, 1992). Clinical studies from the 1930s suggest hypoglycaemic properties for devil's club extracts (Brocklesby and Large 1938; Justice 1966).

Juniper boughs and berries contain a large number of compounds, including flavonoids, benzenoids, lignans, alkenes, diterpene polyprenoids, malic acid, malonic acid, oxalic acid, phenyl pyruvic acid, aconitic acid, tartaric acid, vanillic acid, and ascorbic acid, which have been isolated by a number of different investigators (e.g., De Pascual et al. 1980; Lamer-Zarawaka 1977; Linder and Grill 1978). Juniper berries show antitumor and antiviral effects *in vivo* and *in vitro*, and have shown embryotoxic effects *in vivo* in rats (e.g., Agrawal et al. 1980; Belkin et al. 1952; May and Willuhn 1978). The antiviral properties of juniper berries would be beneficial in the treatment of respiratory illnesses. The ascorbic acid content might also have health benefits.

Indian hellebore (*Veratrum viride*) is recognized by the Wet'suwet'en as potentially deadly. The plant contains a number of toxic alkaloids which can cause death through depression of central blood pressure (Edwards 1980; Jeger and Prelog 1960; Kingsbury 1964). The properties of external washes or of the smoke of burning dried Indian hellebore root remain unknown.

Cow parsnip contains abundant furanocoumarins that are toxic to DNA in the presence of ultraviolet radiation, causing blistering (Camm et al. 1976). Skin blistering could be involved in a counterirritant treatment of swollen rheumatic joints.

FOOD PLANTS

Food plants traditionally used by the Wet'suwet'en include roots, green vegetables, tree "cambiums," numerous wild berries, and plants used for beverages (Table 3). A number of different berries and small fruits were quantitatively and nutritionally the most significant plant foods. Few other foods rich in carbohydrate are available in this region. Only two root vegetables were extensively used by the Wet'suwet'en, spiny woodfern rootstock (Turner et al. 1992) and rice root bulbs. "Cambiums" of pine, hemlock, and spruce were harvested for food in early spring, when at their most palatable and nutritious stage. A few plants were harvested as green vegetables by the Wet'suwet'en in the spring. Nutritional analyses of various fruits and vegetables used by the Wet'suwet'en are discussed by Gottesfeld (1995). Several plants were steeped in hot water to make teas. Sometimes a medicinal value is suggested by Wet'suwet'en people, but the general feeling among my consultants is that these infusions were drunk simply as beverages. Some beverages, like Labrador tea or infusions of conifer needles, may contain significant ascorbic acid and perhaps other nutrients (Berkes and Farkas 1978; Gottesfeld 1995).

Berries.—Berries of all sorts were eaten fresh, dried on racks "like raisins," or preserved fresh in rendered grease and stored in underground storage houses. Blueberries (*Vaccinium* spp.) in particular are described as being stored in this way. In the past berries were also preserved by being made into berry cakes. This process was essentially identical to that described for the Gitksan (People of Ksan 1980). Wooden racks were placed on a frame over a small fire. The rack was lined with leaves of skunk cabbage, (*c'it anco*) or thimbleberry, and cooked berries were ladled on in several layers to allow partial drying and to prevent the berries from spilling (Gottesfeld 1991). The leaves were stripped off of the dried cakes, which were moistened to make them flexible and rolled up on a stick. These berry rolls were hung in a dry place for long term storage (Naziel and Naziel 1978). Huckleberries, saskatoons, and soapberries are particularly described as being preserved in this way.

Today berries are still widely picked but are usually preserved by canning in glass jars. Huckleberries and high-bush blueberries are most widely collected. Soapberries, whose bitter fruits contain saponins are another important berry still in use today. Like many other western Indian people (Turner 1982), the Wet'suwet'en

TABLE 3.—Wet'suwet'en food plants.

Common Name	Green Vegetable	"Cambium"	Root foods	Fruits	Beverage	Other
"Black tree moss"						*
Black twinberry, "bearberry"						
Blueberry, low-bush				✓		
Blueberry, high-bush				✓		
Bunchberry				✓		
Cow parsnip, "wild rhubarb"	✓					
Crabapple, Pacific				✓?		
Cranberry, high-bush				✓		
Cranberry, low-bush; bog				✓		
"Currant, black"				✓		
Currant, red				✓		
Fireweed	✓					
Gooseberry, northern				✓		
Hazelnut, beaked				✓		
Hemlock, western		✓				
Huckleberry, black				✓		
Kinnikinnik				✓		
Labrador tea					✓	
Onion, nodding; "stink grass"	✓					
Pin cherry				✓		
Pine, lodgepole		✓				
Raspberry				✓	✓	
Red columbine						(✓)
Rice root; "wild rice"			✓			
Rose, prickly				✓		
Salmonberry				(✓)		
Saskatoon				✓		
Soapberry				✓		
Spruce		(✓)				
Stonecrop; "stone berries"	✓					
Strawberry, wild				✓		
Thimbleberry				✓		
"Wild carrots"			✓			
Wood fern, spiny			✓			

* reported by Morice (1893)

prepare soapberries by beating them into a froth, or they may eat the boiled berries by the spoonful.

Formerly the abundant kinnikinnik berries were important in the diet of the Wet'suwet'en people. The fruits of the bunchberry were also collected.

Root foods.—In the past *diyī'n*, the rootstock of the spiny wood fern, was an important staple food, as it also was among the Gitksan, Tsimshian, Haisla, and a number of other Indian groups of coastal British Columbia (Turner et al. 1992).

Fern roots were dug in the fall after the leaves had withered, or in the winter by shovelling off the snow to expose the dried tops of the plants. Apparently the rootstock is not damaged by freezing. Elders who have eaten this plant remember its flavor with pleasure, and comment that it was the "potatoes" of their people.

Annual trips were made from Hagwilget to Blue Lake to gather and store *diyí' n*. The meadows at the heads of Corya and John Brown Creeks were other areas where *diyí' n* was picked. A stock of stored fern rhizome, rich in carbohydrate (Turner et al. 1992; Kuhnlein 1990), provided a welcome source of calories in late winter when other foods might be growing scarce. To prepare this food, it was slowly baked overnight in a pit covered with birch bark and earth. Each individual leaf base was then pulled off and peeled before eating. This food was generally eaten with rendered grease or fish oil, and often accompanied by dried spring salmon eggs.

The other important Wet'suwet'en root food was *c'inkalh*, the bulblets of rice root, locally called "wild rice." These bulblets can be collected in reasonable quantity in rich, moist, low elevation meadows in the northwest part of the Wet'suwet'en territory. They can be gathered in spring and fall. They were pit cooked or boiled and served with sugar or salt.

Tree "cambiums."—The tree cambiums, *misdzu* (from hemlock) and *k'inih* (from lodgepole pine), were formerly prized plant foods. Spruce cambium was also utilized. Hemlock cambium was often obtained by trade from Gitksan people, as it is more widespread and abundant in the Gitksan territory. Hemlock cambium was gathered in the spring by removing the bark of mature trees and scraping the cambium layer from the bark. It was preferentially harvested from stands with a southern exposure because "the sun makes the sap sweeter" (Richard Daly, personal communication, 1991). The cambium was pounded after collection. Some people remember dried hemlock cambium cakes, while others recall shavings. Hemlock cambium has been described as tasting like saskatoons.

Pine cambium was widely gathered in the Wet'suwet'en territories. It was harvested in May or June when the sap rises in the pines and the bark is loose. The bark was removed from a standing tree with axe or knife, and the cambium carefully scraped from the outer surface of the exposed wood. Much of it was probably consumed fresh, especially by children, as it is rich in sugars (Gottesfeld 1995) and tastes sweet. It was also dried on wooden racks over a slow fire much as berries were dried by the Wet'suwet'en, or hung to dry as individual strips over a piece of cord. The dried strips were then crumbled to resemble cornflakes and stored for winter.

Green vegetables.—The young flowering stalks of the cow parsnip or "wild rhubarb" (*ggus*) are still gathered in spring, peeled, and eaten fresh. They can also be fried lightly or roasted in a campfire. Some modern Wet'suwet'en preserve this prized vegetable by freezing.

Another vegetable eaten by the Wet'suwet'en was stonecrop (*tsë mi'*). It was gathered in May before flowering. The Wet'suwet'en people cooked the small fleshy leaves of this plant, frying it lightly and sometimes adding sugar before serving. The same species was eaten by the Gitksan and the Niska'a, who classed

it as a berry and ate it raw or cooked with sugar and grease (Jensen and Powell 1979; McNeary 1976; Gottesfeld field notes 1984).

Fireweed stalks (*khast'an*) were stripped of their leaves, split, and bent over. The marrow was then stripped out and eaten. It is described as tasting like bananas.

Nodding onion was gathered and eaten raw in the spring. It was called stink grass (*tl'o ilhtsin*).

Columbine flower tips (*lesokh*) were bitten off and the nectar sucked by children for a sweet snack.

At the present time, the only traditional plant foods important in the Wet'suwet'en diet are various wild berries, such as saskatoons, blueberries, huckleberries, soapberries, wild strawberries, and wild raspberries (fresh, canned, or made into jam), and "wild rhubarb" (cow parsnip). Many living adults remember collecting pine cambium. The elders recall eating traditional vegetable foods such as spiny woodfern rootstock or hemlock cambium, though no one has gathered these foods for decades. Some people also recall gathering stonecrop leaves in spring for the elders. In addition, Labrador tea or raspberry leaves are collected and brewed for tea by some people. There is renewed interest in traditional foods by young people, some of whom are learning about traditional foods through local educational programs. Knowing about and eating such foods contributes to their sense of identity as Wet'suwet'en.

PLANTS USED IN TECHNOLOGY

Plants were used for construction, carving, cordage, and heating fuel; for smoking foods and hides; and for bedding, roofing, and coverings. The wood of a variety of trees and large shrubs was used for different purposes, depending on their properties and availability. Bark of various species of trees and shrubs was used for cordage, coverings, and basket construction. Leaves, stem fiber, and boughs of shrubs and herbaceous plants were also used for cordage, food preparation, and bedding. Moss and fruticose lichens were used for chinking, diapers, or tinder. The following discussion does not include complete information on carving, construction, boat-building, or smoking.

Bark uses and cordage plants.—The most important bark used for cordage by the Wet'suwet'en was the inner bark of willow trees. Willow bark (*k'ältay*) (*Salix* spp., probably *S. lasiandra*, *S. scouleriana*, or both), was twined for cord, still especially for set lines and fish nets. Untwined green willow bark is still used for tying up fish in the smokehouse and lashing together shelters (Fig. 3). It was also used to lash beaver skin to a hoop of red-osier dogwood while the skin was being stretched and dried. Willow bark is tough and durable when wet, but brittle when dry. Willow bark and nets and cords made from it therefore had to be soaked before use to make them pliable.

Cedar bark (*hët'il*) was also used for cord, and sometimes made into twined capes and dresses in the manner of the Gitksan. The cord was used to hang fish in the smoke house, to lash together fish traps, and in the construction of wooden bridges. Cedar bark could be gathered in much longer lengths than willow bark,



FIG. 3.—Bundle of prepared willow bark to be used to hang fish in the smoke house, Moricetown.

but was only available in the northern part of the Bulkley Valley near Moricetown and Hagwilget.

Whole cedar bark and spruce bark were used for durable roofing. Cedar bark was peeled from the tree in May when the sap rises by cutting around the tree with an axe near the base and again higher up. A stick was used as a spud to peel the whole bark off the wood. While still green and flexible, bark strips were laid over the peak of the roof. The bark was laid in two layers: the lower with the inner surface up, and the upper with the outer surface up, positioned to cover the joints in the lower layer. The roofing was weighted down with poles to prevent its blowing off. Cedar bark roofing was said to last for several years, while spruce bark roofing would have to be replaced more frequently.

Birch is called *k'ay* which also refers to birchbark. Some consultants call birch by the word for green tree, *dili* and birch wood, *dili tsiz* "green firewood." Birch bark was used for basketry and in pit cooking. For baskets the bark must be collected from a living tree and used before it dries out and hardens (Modern women sometimes keep freshly stripped birch bark in the deep freeze for later use.) Birch baskets were used for food storage and for carrying water, berries, and other items (Fig. 4). Torches were also made of rolled birchbark, and birchbark was used to carry fire from one camp to the next.

The Wet'suwet'en apparently once made birchbark canoes. A birchbark canoe was constructed in the Burns Lake area as recently as the late 1970s or early 1980s (Bob Skin, personal communication, 1994).



FIG. 4.—Birchbark basket made by Jenny Naziel of Moricetown, B.C.

Split spruce roots (*khay*) are used for sewing birchbark baskets and stitching together birchbark canoes. Spruce roots were once used for making large cargo baskets. Such baskets were used to carry the remains of the dead back to the village if they died on the trap line or in a remote area. Thick spruce roots were also reportedly used for constructing fish traps, which were lashed together with cedar bark.

The fiber of spreading dogbane (*c'indeklh*) was spun and twined to make cord for rabbit snares.

Wood for carving and construction.—Spruce was formerly one of the most important woods for construction, in part because of its widespread availability. Spruce poles were used for construction of winter lodges, "A" frame buildings about 2.5 m high (Morice 1893), cabins, and caches. In the area around the summer villages of Moricetown (Kyah Wiget) and Hagwilget (Ts'e Kya), red cedar was used for construction and for totem pole carving. Red cedar can be readily split

along the grain to produce durable and rot-resistant planks, which were used in the construction of feast houses. Cedar poles were used to frame these large and imposing buildings.

Cedar wood, *simggin*, was also used for making bentwood boxes for storing food and goods, and for cradles. According to one elder, aspen wood (*t'ighis tsiz*) was used also for bentwood boxes and plates.

Spruce poles are preferred for salmon gaff poles at Moricetown Falls. The gaff pole consists of a large hook is lashed to the end of a long pole and secured with a leather strap. The fisherman holds the gaff pole down in the current and jerks sharply upward when he feels a fish. If a fish is caught on the hook, the fisherman hauls the pole out of the water and removes the fish. Young trees, 5–6 cm in diameter and some 9 m long, are used. Spruce gaff poles will last three to four years. Cedar and subalpine fir are too brittle for this use, and they float up rather than stay down in the current. Hemlock saplings are too heavy for this use.

The most important use for maple, *'ayh*, was for snowshoes. The word *'ayh* means both maple and snowshoe. Maple wood is hard and strong, but heavy. Apparently ice skates were also fashioned from maple in the recent past. Maple was also sometimes used for other household implements where durability and hardness were desired, such as for tumpline looms.

Both spruce and pine were also employed for snowshoe construction. Maple does not extend into higher elevations or more interior sites and so is not available in many traditional trapping areas. Snowshoes made of woods other than maple wore out much faster, lasting only a single season. Although pine wood is not very strong, it was much lighter than maple, and some considered its tendency to "fuzz" when exposed to wear to be a positive characteristic: it made pine snowshoes somewhat less likely to slip. Willow wood was also used for snowshoes. These were called *k'ältay 'ayh*.

Rocky Mountain juniper wood is very hard. It was formerly used to make a special knife for harvesting pine "cambium." Arrows were also made from it. The wood was boiled in grease for these uses to prevent its cracking. Juniper is limited to certain xeric, south facing slopes in the Bulkley Valley. A locality south of Telkwa was traditionally known for juniper.

Birch wood is used for carving masks, spoons, and soup bowls. Birch wood is also valued as firewood, as it is dense and has a high yield of heat energy per volume of wood.

Cottonwood was important for canoe construction. The word for cottonwood and canoe is the same, *t s'iy*. Canoes were traditionally dugouts constructed from cottonwood trunks. Similar canoes were made by the Gitksan and by the Carrier of Takla Lake. (The Gitksan word for cottonwood, although linguistically unrelated, means "good for canoe"). There is some evidence that the Wet'suwet'en may also have built birchbark canoes, and spruce bark canoes were apparently constructed as an emergency measure.

The different chemical properties of woods were appreciated for smoking, an important way of preserving foods and coloring and preserving hides. Cottonwood wood was used in hide smoking to give hides a very pale color. Rotted spruce wood gives a brown color to hides. Pine cones (*dikhlengwil*) are also used to give moosehide a brown color.

Rotten aspen wood that is lying on the ground is used for smoking beaver meat, and aspen is the preferred wood for smoking salmon. Cottonwood was also used for smoking fish and meat. Weathered driftwood could be used for the smokehouse if needed. The wood of resinous conifers was avoided for smoking foods.

Boughs and withes.—Spruce boughs, *ts'o 'il*, were used as thatch over the pole roof of winter lodges or small cabins. Spruce boughs can be used for bedding when camping.

The branches of red osier dogwood, *k'ëntsec*, are very flexible. Red osier dogwood branches were used for the frames of temporary sweat huts. Larger branches were joined to form a circular frame for stretching beaver hides. Thin, smaller branches are used to form the rim of birchbark baskets.

Moss.—"Diaper moss" is called *yin yil* or *yintl'akh yil*, "moss," or "white moss." A long, pale sphagnum moss was gathered from bogs and dried in trees or bushes. The preferred kind is about 18"–20" long. Feathermoss from hemlock stands (species such as *Hylacomium splendens* or *Rhytidiadelphus* spp.) could also be used. It was used for diapers and to absorb menstrual flow. Sufficient moss to last the winter was gathered and dried in late summer. Urine-soaked moss could be washed and reused, but moss soiled by feces or menstrual blood was considered unclean and discarded. Moss was also used to chink log cabins.

Leaves.—Leaves of several large-leaved species were used to provide clean surfaces in food processing. Skunk cabbage leaves, *c'it'anco* (*Lysichitum americanum*), were used to line the wooden rack used for making berry cakes. Thimbleberry leaves were also used for this purpose. Lady fern and spiny wood fern fronds were gathered to lay salmon on for curing before the fish were cleaned and cut up for drying. The fish were covered with a second layer of fern fronds. Now fish are often stored for a day in tubs of cold water, but they may still be laid on fern fronds for a while after being caught.

Tinder.—Before matches were introduced, "black tree moss," *dikhghe* (*Alectoria* spp. or *Bryoria* spp.), was used as tinder for starting fires with a spark made by striking rocks together. Alternatively, fire could be carried with a slow match made of a thick, tightly twisted cedarbark rope. In an oral history, a young woman who was being abandoned was secretly left a glowing ember of cinder conk (Gottesfeld 1992b), documenting a third type of tinder or slow match traditionally used by the Wet'suwet'en.

Miscellaneous plant uses.—The ash from aspen wood (*t'ighis tsiz*) was used as a soap. Alder bark, *k'is*, was used as a red dye for birch bark baskets.

DISCUSSION

As might be anticipated for people living in a heavily forested, northern environment, many of the plants used by the Wet'suwet'en are forest trees and

shrubs. Important medicines and foods, as well as plants used for technology and material culture, are derived from the stems of trees and large shrubs (Gottesfeld 1992a). Berries of many kinds, also largely derived from perennial shrubs, were the most important food plants. The fleshy roots of some perennial herbs were used, such as yellow pond lily and cow parsnip for medicines, and the fern rhizome *diyí' n* as a carbohydrate source. Mosses and lichens were used for diapers and tinder, but not for food or medicine within living memory. They may have been used for dye in the past. Fungi, with the exception of the cinder conk, were all lumped under one term, *c'ebedzik*. The only reported use of fungi was use of an unidentified woody polypore for cosmetics, and of cinder conk or "black birch burl" for medicinal purposes and as a slow match (Gottesfeld 1992b). None of the many mushrooms in the region were utilized for food.

Wet'suwet'en plant uses reflect the availability of different plants in the transitional environment occupied by the Wet'suwet'en. Like the Gitksan to the north and west, the Wet'suwet'en made use of western red cedar, available in the northwestern part of their territory, for constructing plank long houses, totem poles, and wooden storage boxes, and of cedar bark for cordage. In the interior parts of their territories, spruce poles and bark or branches were used for construction. Birchbark baskets, used across boreal North America, were more characteristic of Wet'suwet'en households than the bentwood cedar boxes ubiquitous on the North coast. Willow bark and sinew or rawhide, more widely available in Wet'suwet'en country than cedar, were the most important cordage materials. Hemlock "cambium," though less important in Wet'suwet'en diet than in that of coastal peoples, was relished and gathered in the northwestern part of the Wet'suwet'en territories, or obtained in trade from their neighbors. Pine "cambium," readily available throughout Wet'suwet'en lands, was a more typical cambium food than hemlock. Similarly, Douglas maple, used by the Gitksan for snowshoes, was used by the Wet'suwet'en where available in the northwestern area, but spruce or pine were used where maple was unavailable.

Cultural concepts involving health, healing, and the spiritual world are shared by the Wet'suwet'en and neighboring groups. Two important concepts shared with the Gitksan include purification and "getting lucky." As hunting and gathering peoples, both the Gitksan and the Wet'suwet'en were dependent on success in hunting for an important part of their food supply. Hides and meat also brought prestige and paid debts when given away at potlatches. Preoccupation with hunting success led both groups to ensure the luck of the hunter by spiritual means. Plants such as devil's club, Indian hellebore, and *hadik*⁵ were used by both in rituals to purify hunters, their equipment, and their families, and to promote good fortune (Gottesfeld and Anderson 1988; Jenness 1943). These practices, generally very private, continue at the present time in both groups in more traditional families. A larger number of people are aware that these plants "bring luck."

Many of the medicinal plants utilized by the Wet'suwet'en were used in similar ways by the Gitksan, which is not surprising due to the long period of exchange and interaction between these cultures and the similarities in the environments they occupy. However, certain plants were used more frequently among the Wet'suwet'en than the Gitksan. For example, the Wet'suwet'en made extensive use of black twinberry, mountain ash, and red-osier dogwood.

A number of medicinal plants used by the Wet'suwet'en were also used by the Central Carrier (Carrier Linguistic Committee 1973). Medicinal use of spruce and fir inner bark and pitch, pine tips, red-osier inner bark, devil's club inner bark, mountain ash bark, soapberry stem bark, scouring rush, juniper, wild rose, and Indian hellebore were shared with the Central Carrier. Plants such as spruce, subalpine fir, Indian hellebore, and devil's club are found over much of northern B.C. and were used medicinally by all peoples of the region (Turner 1982).

The long association of the Wet'suwet'en with the Gitksan in the Hazelton area led to considerable cultural diffusion and some linguistic borrowing. Although for most plants the names in Wet'suwet'en, an Athapaskan language, and Gitksan, a Tsimshian language, bear no resemblance to one another, some significant plant names are shared. Words for fireweed, yellow pond lily, cedar, cedar bark, pine cambium, cranberry, wild cherry, and spreading dogbane are among the shared plant words. Some were evidently Gitksan in origin. These include the names for red cedar and cedar bark, spreading dogbane, fireweed, and possibly pine cambium.

SUMMARY AND CONCLUSIONS

The Wet'suwet'en are transitional both in territory and way of life. Their lands span the transition between the coastal rainforests and the interior spruce forests. Their social structure, belief system, and way of life show the twin influences of their nomadic hunting Athapaskan ancestors of the boreal regions and the more sedentary fishing and gathering cultures of the Northwest Coast. Plant names and uses reflect interaction with both the coastal Gitksan and the interior Carriers. Gitksan-derived plant terms are loanwords across a major linguistic boundary, suggesting a long history of contact (Rigsby and Kari 1987).

The present study documents the names and uses of 59 species of vascular plants and three nonvascular taxa by the Wet'suwet'en in the historic period. Most plants used are plants of forest or woodland; many are woody perennials or trees. Despite the traditional reliance of Athapaskan-speaking hunting peoples on animal products, a diverse array of plant species was used for food, medicine, and technology by the Wet'suwet'en. Modern Wet'suwet'en continue to collect various medicinal barks and roots, especially devil's club, spruce, subalpine-fir, and mountain ash barks and Indian hellebore rhizomes. Berry picking is still a significant activity, and wild berries are highly regarded. Carving and birchbark basket making are modern craft activities that reinforce Native identity and help to provide an economic base for the community through sale to tourists, collectors, and the local population.

NOTES

¹The following Wet'suwet'en people generously shared their time and knowledge: Edna Alfred, the late Madeline Alfred, Katherine Arsenault, Charles Austin, Margaret Austin, the late Mary Ann Austin, Mabel Forsythe, Adam Gagnon, Andrew George, Leonard George, Joe George, Florence Hall, Alfred Joseph, Cecilia Lapalme, Bazil Michell, Caroline Michell, Doris Michell, Josephine Michell, the late Alfred Mitchell, Charlotte Mitchell,

Jenny Mitchell, Roy Morris, Lizette Naziel, Pat Namox, Lucy Namox, Elsie Tait, Sara Tait, Tommy Tait, Christina William, and Margaret Williams.

²Voucher specimens of important ethnobotanical species are on deposit in the ethnobotany collection of the herbarium at the Royal British Columbia Museum (V) in Victoria, British Columbia, Canada.

³Spellings of Wet'suwet'en words by Sharon Hargus, using the modified Hildebrandt system (informal name), were provided in 1989.

⁴Spellings of Gitksan words is after Gottesfeld and Anderson (1988).

⁵*Hadik* is the name of an unknown plant used for ritual and medicinal purposes by both the Gitksan and Wet'suwet'en. It may be a clubmoss (most likely *Huperzia selago*), but efforts to identify the plant positively have been unsuccessful to date.

ACKNOWLEDGEMENTS

First, I thank all the elders and other Wet'suwet'en people who shared their knowledge so that it could be preserved for the future. I thank Doris Michell for help with interviews and translation of Wet'suwet'en language tapes; Cecilia Lapalme for help with interviews, and for sharing her own knowledge and insights; Doug Tait for support and manuscript review; Sharon Hargus and Jim Kari for assistance with orthography and linguistics; and Alfred Joseph and Dora Wilson-Kenni for reviewing vocabulary lists and manuscript review. Funding for this research came from the Kyah Wiget Education Society (as part of the Wet'suwet'en Plant Curriculum project), the Secretary of State, the Gitksan Wet'suwet'en Tribal Council, the Gitksan Wet'suwet'en Education Society, the Gitksan-Wet'suwet'en Traditional Medicine Project, and NNADAP (funding for the Traditional Medicine Project), and the Canadian Circumpolar Institute. I thank Ross Hoffman for support, community liaison, help in fieldwork, manuscript review, and helpful discussions. I would like to thank Linda Burnard and Nancy Turner for helpful discussions. I thank Richard Daly, Joseph Laferrière, Nancy Lovell, Nancy Turner, and Deborah Pearsall for manuscript reviews. I thank Lois Browne and Sheng-Chu Feng for information on the chemistry of devil's club. Last of all I would like to thank Allen S. Gottesfeld for support, photography and field assistance, and manuscript review.

LITERATURE CITED

- AGRAWAL, O. P., J. S. BHARADWAJ, and R. MATHER. 1980. Antifertility effects of fruits of *Juniperus communis*. *Planta Medica* 40 (Supplement):98-101.
- BELKIN, MORRIS, DOROTHEA B. FITZGERALD, and MARIE D. FELIX. 1952. Tumor-damaging capacity of plant materials II: Plants used as diuretics. *Journal of the National Cancer Institute* 13:741-744.
- BERKES, FIKRET and CAROL S. FARKAS. 1978. Eastern James Bay Cree Indians: Changing patterns of wild food use and nutrition. *Ecology of Food and Nutrition* 7:155-172.
- BROCKLESBY, H. N. and R. G. LARGE. 1938. A hypoglycemic substance from the roots of Devil's Club. *Canadian Medical Association Journal* 39:32-38.
- BROWNER, C. H. 1985. Criteria for selecting herbal remedies. *Ethnology* 24:13-32.
- , BERNARD R. ORTIZ DE MONTELLANO, and ARTHUR J. RUBEL. 1988. A methodology for cross-cultural ethnomedical research. *Current Anthropology* 29:681-702.
- BYE, ROBERT A. Jr. 1986. Voucher specimens in ethnobiological studies and publications. *Journal of Ethnobiology* 6:1-8.
- CAMM, EDITH L., WAT CHI-KIT, and G. H. N. TOWERS. 1976. An assessment of the roles of furanocoumarins in *Heracleum lanatum*. *Canadian Journal of Botany* 54:2562-2566.
- CARRIER LINGUISTIC COMMITTEE. 1973. Hanúyeh Ghun 'Utñi-i. Carrier

- Linguistic Committee, Fort Saint James, B.C.
- DALY, RICHARD. 1988. Anthropological opinion on the nature of the Gitksan and Wet'suwet'en economy. Opinion evidence in Delgamuukw et al. versus The Queen in the light of the Province of British Columbia and the Attorney-General of Canada. British Columbia Supreme Court, 0343, Smithers Registry Manuscript on file, Gitksan-Wet'suwet'en Government Library, Hazelton, B.C.
- DE PASCUAL, TERESA J., A. F. BARRERO, L. MURIEL, A. SAN FELICIANO, and M. GRANDE. 1980. New natural diterpene acids from *Juniperus communis*. *Phytochemistry* 19:1153-1156.
- EDWARDS, GRANT THOMAS 1980. Bella Coola Indian and European medicines. *The Beaver* Winter 4-11.
- ETKIN, NINA L. 1986. Multidisciplinary perspectives in the interpretation of plants used in indigenous medicine and diet. Pp. 2-29 in *Plants, Indigenous Medicine and Diet. Biobehavioural Approaches*. Nina L. Etkin (editor). Redgrave Publishing Company, Bedford Hills, NY.
- GOTTESFELD, LESLIE M. JOHNSON. 1991. *Plants that We Use, Traditional Plant Uses of the Wet'suwet'en People*. Kyah Wiget Education Society, Moricetown, B.C.
- . 1992a. The importance of bark products in the aboriginal economies of northwestern British Columbia, Canada. *Economic Botany* 46:148-157.
- . 1992b. Use of Cinder Conk (*Inonotus obliquus*) by the Gitksan of Northwest British Columbia, Canada. *Journal of Ethnobiology* 12:153-156.
- . 1995. The role of plant foods in traditional Wet'suwet'en nutrition. *Ecology of Food and Nutrition*, in press.
- and B. ANDERSON. 1988. Gitksan traditional medicine: Herbs and healing. *Journal of Ethnobiology* 8:13-33.
- HAEUSSLER, S., J. POJAR, B. M. GEISLER, D. YOLE, and R. M. ANNAS. 1985. A guide to the Interior Cedar-Hemlock Zone, Northwestern Transitional Subzone, (ICHg), in the Prince Rupert Forest Region, British Columbia. Land Management Report No. 26, Information Services Branch, Ministry of Forests, Victoria.
- JEGER, O. and V. PRELOG. 1960. Steroid alkaloids, veratrum group. Pp. 363-417 in *The Alkaloids*, Vol. VII. R. H. F. Manse (editor). Academic Press, New York.
- JENNESS, DIAMOND. 1943. *The Carrier Indians of the Bulkley River; Their Social and Religious Life*. Bureau of American Ethnology Bulletin 133, Anthropological Papers, No. 25:471-586. Smithsonian Institution, Washington, D.C.
- JENSEN, VICKIE and J. V. POWELL. 1979. *Learning Gitksan Book 1, Western Dialect*. Kitwancool, Kitsegukla, and Kitwanga Indian Bands.
- JUSTICE, JAMES W. 1966. Use of devil's club in southeast Alaska. *Alaska Medicine* 8:36-39.
- KARI, JAMES M. 1975. Babine, a new Athabaskan linguistic grouping. Urgent Ethnology Contract No. UE10-90-73. Manuscript on file, Alaska Native Language Center, Fairbanks.
- KINGSBURY, JOHN M. 1964. *Poisonous Plants of the United States and Canada*. Prentice-Hall, Englewood Cliffs, NJ.
- KUHNLEIN, HARRIET V. 1989. Nutrient values in indigenous wild berries used by the Nuxalk people of Bella Coola, British Columbia. *Journal of Food Composition and Analysis* 2:28-36.
- . 1990. Nutrient values in indigenous wild plant greens and roots used by the Nuxalk people of Bella Coola, British Columbia. *Journal of Food Composition and Analysis* 3:38-46.
- LAMER-ZARAWAKA, E. 1977. Flavonoids of *Juniperus communis*. *Rocznik Chemii* 51:2131-2137.
- LINDER, WOLFGANG and DIETER GRILL. 1978. Acids in conifer needles. *Phyton (Horn, Austria)* 18:37-144. (in German)
- MAY, G. and G. WILLUHN. 1978. Antiviral activity of aqueous extracts from medicinal plants in tissue cultures. *Arzneimittel-Forschung* 28:1-7. (in German)
- MCNEARY, STEPHAN A. 1976. *Where Fire Came Down. Social and Economic Life of the Niska*. Unpublished

- Ph. D Dissertation, Bryn Mawr College, Bryn Mawr, PA.
- MILLS, ANTONIA, 1987. The feasts, institutions, and laws of the Wet'suwet'en. Manuscript on file, Gitksan-Wet'suwet'en Government Library, Hazelton, B.C.
- MORICE, REV. FATHER A. G. 1893. Notes Archaeological, Industrial, and Sociological on the Western Dénés. Transactions of the Royal Canadian Institute Session 1892-1893.
- MOSKALENKO, S. A. 1986. Preliminary screening of far-eastern ethnomedicinal plants for antibacterial activity. *Journal of Ethnopharmacology* 15:231-259.
- NAZIEL, CAROL, and RHONDA NAZIEL. 1978. Stories of the Moricetown Carrier Indians of Northwestern B.C. Moricetown Indian Band Council, Moricetown, B.C.
- PEOPLE OF 'KSAN. 1980. *Gathering What the Great Nature Provided*. Douglas and McIntyre, Vancouver and University of Washington Press, Seattle.
- POJAR, J., R. TROWBRIDGE, and D. COATES. 1984. Ecosystem Classification and Interpretation of the Sub-Boreal Spruce Zone, Prince Rupert Forest Region, British Columbia. Land Management Report Number 17, Province of British Columbia Ministry of Forests, Victoria.
- RIGSBY, BRUCE and JAMES KARI. 1987. Gitksan and Wet'suwet'en linguistic relations. Manuscript on file, Gitksan Wet'suwet'en Government Library, Hazelton, B.C.
- SMITH, HARLAN, I. n.d. The uses of plants by the Carrier Indians of British Columbia. Manuscript on file, Canadian Museum of Civilization, Hull, Quebec.
- . 1928. *Materia medica of the Bella Coola and neighbouring tribes of British Columbia*. 1927 Annual Report of the National Museum of Canada, pp. 47-68. Kings Printer, Ottawa.
- TURNER, NANCY J. 1975. Indian use of *Shepherdia canadensis*, soapberry, in western North America. *Davidsonia* 12:1-11.
- . 1982. Traditional use of devil's-club (*Oplopanax, horridus*; Araliaceae) by Native Peoples in western North America. *Journal of Ethnobiology* 2:17-38.
- , LESLIE M. JOHNSON GOTTESFELD, HARRIET V. KUHNLEIN, and ADOLF CESKA. 1992. Edible woody fern rootstocks of western North America: Solving an ethnobotanical puzzle. *Journal of Ethnobiology* 12:1-34.